

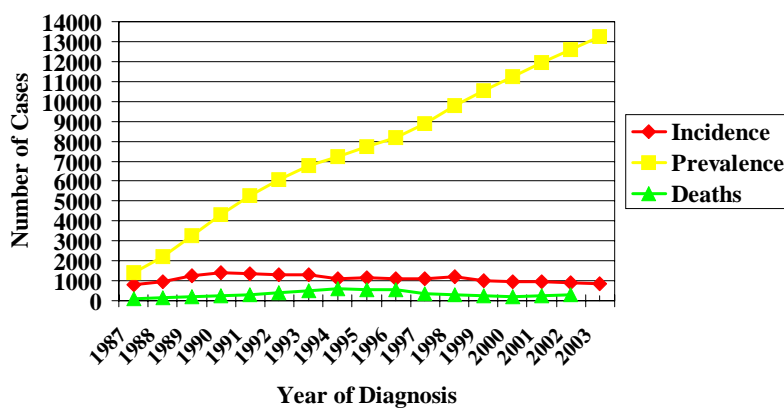
CHAPTER 1: EPIDEMIOLOGIC PROFILE

Epidemiologic Profile Summary

Since 1981, more than 19,400 persons have been diagnosed with HIV infection (including AIDS) in South Carolina through December 2003. During 1985 – 1990 an average of 848 cases were diagnosed each year. In the subsequent three years (1991 – 1993), newly diagnosed HIV/AIDS cases averaged 1,310. The increase during this period was in part due to the artificial rise in AIDS cases due to the change in case definition in 1993. For the past five years, the annual number of new cases has been about 1000. Many more persons are infected but have not been tested.

Some of the changes over time in numbers of new cases are largely the result of reporting patterns or targeted testing initiatives. The initial steep rise in the epidemic reflects the early years when less was known about the transmission of HIV and effective medical treatments did not exist. As a result, infection rates increased and more HIV-infected individuals went on to develop AIDS. Most experts believe that when more was learned about HIV and the behaviors involved in its spread, effective prevention strategies reduced the overall number of new infections, and medical treatment, for some individuals, postponed the onset of AIDS. In more recent years, however, there is concern nationally that the epidemic may grow particularly among young men who have sex with men.

“Figure 1. South Carolina HIV/AIDS Incidence, Prevalence and Deaths



Number of Cases Diagnosed in SC only; excludes out of state cases returning to SC.

Since 1994, new anti-retroviral drugs and strengthened care services have contributed to a decline in overall AIDS deaths. This decline is illustrated by the 302 deaths in 2001, a 42% drop from the 521 deaths in 1994. It is important to note that despite the decline in deaths due to AIDS and the apparent stabilization of the number of new HIV/AIDS cases diagnosed annually, the prevalence of HIV infection (the number of persons estimated to be living with HIV/AIDS) is

significantly increasing. The number of persons living with HIV/AIDS at the end of each year has increased 83% from 1995 to 2003. It is also important to note that there are differences among certain populations in the number and rate of new and prevalent infections, as this profile will indicate. Figure 1 shows total incidence (the number of new cases within a specified time period), deaths and prevalence of HIV/AIDS cases in South Carolina since 1987.

The epidemic in South Carolina is primarily driven by sexual exposure, primarily among men who have sex with men and heterosexuals at risk. Injecting drug use appears to be diminishing as a risk for HIV.

African Americans are disproportionately affected by HIV/AIDS and are over-represented among all risk populations.

Overview of Chapter

The purpose of this Epidemiologic Profile is to provide information to the SC HIV Prevention Community Planning Group (CPG) on the number and characteristics of persons becoming HIV infected in order to target and prioritize HIV prevention activities.

This chapter of the SC HIV Prevention Plan includes a list of definitions and describes the data sources used, the limitations of each data type, and presents the data in order to answer the following questions:

- 1. What are the socio-demographic characteristics of the population?**
- 2. What is the impact of HIV/AIDS on the population?**
- 3. Who is at risk for becoming infected with HIV?**
- 4. What is the geographic distribution of HIV infection?***

These questions will be explored through analyses of cumulative living (prevalent) and newly diagnosed (incident) HIV/AIDS cases; a description of seroprevalence data from HIV counseling and testing sites and other studies; a summary of other risk behavior profiles and community-based HIV risk assessment information; and a discussion of related sociodemographic, health and risk behavior indicators.

*Note: geographic distribution will be discussed within questions 2 and 3 for each population/risk described.

Definitions

AIDS - Acquired Immunodeficiency Syndrome, the end stage of HIV infection characterized by life-threatening or severely disabling disease.

HIV - Human Immunodeficiency Virus, the virus which causes AIDS.

HIV/AIDS - Includes those persons with HIV infection, as well as those who have progressed to AIDS. Unless noted, most HIV data in this profile includes persons diagnosed with AIDS.

HIV Only- Includes only persons with HIV infection who did not develop AIDS within 365 days of report of positive HIV test.

Incidence- The number of HIV/AIDS cases newly diagnosed and reported each year. Incidence cases may be combined in two- or three-year periods.

Incidence Rate - Number of new cases occurring during a period of time, divided by the annual average population, multiplied by 100,000. It is a measure of the frequency with which an event (e.g. new HIV/AIDS cases) occurs in a population over a period of time. It is also a measure of risk of getting the disease.

Prevalence- The number or proportion of persons estimated to be living with HIV/AIDS at the end of a particular period of time (e.g. year).

Prevalence Rate - Total number of living HIV/AIDS cases (both old and new cases) during the year of report, divided by the annual average population multiplied by 100,000. It is the proportion of persons in a population who have a particular disease or attribute at a specified point in time (or specified period of time).

Rates are used to:

- measure the frequency of disease (in this case, HIV/AIDS) or other outcomes of interest,
- describe the distribution of disease occurrence in human populations,
- allow comparison of the risk of disease or burden of disease across populations,
- characterize the risk of disease for a population, and
- identify determinants of disease.

They may also be used to help:

- prioritize prevention programs among competing causes,
- identify target groups for intervention,
- acquire funding for resources, and
- compare events across geopolitical boundaries.

Types And Quality Of Data

Because no one epidemiologic data set will provide a complete picture of HIV/AIDS in the community, or the state for that matter, we have assembled data from several categories and sources. Data from a variety of categories provide a more accurate picture of past, present and future HIV/AIDS infection trends. Keeping in mind that not all data are equal, data sources must be considered in the context of their objectives, strengths and limitations; who the target populations are; how the data were collected; and the validity of the data.

As described above, several data sets are used to illustrate the South Carolina populations diagnosed with HIV/AIDS and to characterize the nature of risk-taking. All of these data sets share limitations or have similar types of bias introduced, in that most are reported by third parties, largely providers, who must seek information from the affected individual as to illness, transmission mode, and demographic characteristics. These reports are limited both by the willingness of providers to ask about these factors and that of clients to report on personal behaviors. These data are also limited in their ability to broadly characterize populations. For

instance, STD (sexually transmitted disease) or HIV/AIDS case report data can only characterize persons with STD or HIV who seek treatment, or data on estimated condom use among women can not characterize all women but only those who agree to participate in selected behavioral surveys. Individuals who seek treatment for STD (and who are offered HIV testing) may be very different from those individuals who do not. However, each of the data sets referred to in this profile provide information to describe the relative risk and impact of this disease on the people of South Carolina.

The following summarizes data sources, and limitations, used by the data working group to complete the South Carolina Epidemiologic Profile of HIV/AIDS.

Selected Data Source: Description and Limitations

SC Department of Alcohol and Other Drug Abuse Services (DAODAS) SC Treatment Needs Assessment: Household Telephone Survey Data

The purpose of the survey was to collect data on the prevalence of use of alcohol, marijuana, hallucinogens, cocaine, and heroin; to identify treatment needs related to use of these substances; and to determine the background characteristics associated with different patterns of use. The state was stratified into four regions and within each stratum a random sample of telephone numbers were selected using random digit dialing (RDD). The questionnaire was based largely on the National Technical Center's Telephone Substance Dependence Needs Assessment Questionnaire, which is "designed to be the centerpiece of a needs assessment of treatment services that state or territories may conduct as part of their substance abuse planning activities. Trained staff conducted interviews. A total of 10,324 interviews were completed as part of the study by residents 18 years of age and older.

Advantages to conducting a telephone survey compared to face-to-face interviews are as follows: 1) it costs three times less; 2) able to collect data from a significantly large number of individuals, resulting in smaller standard errors for the overall estimates of use of various substances and a larger number of individuals with rare characteristics.

Limitations include: population coverage—collecting data by telephone limits the potential respondents to those living in households and excludes individuals, such as the homeless, those in correctional facilities, and those in treatment facilities who may be more likely to experience problems with alcohol and other drugs. Moreover, according to 1990 census data, 7.9% of households in South Carolina do not have telephones and, consequently, had no chance of being included in the study. Secondly, underreporting—in general, respondents' concerns over confidentiality produce underestimates of reports of sensitive behaviors such as those considered in this study. Despite these limitations, telephone surveys can provide comparatively reliable estimates of substance use and characteristics associated with such use and they have been regarded as an effective means for collecting such data from the general population.

HIV Counseling and Testing Program Data from DHEC Clinics

Counseling and testing data, while highly informative about persons who seek counseling and testing, does not tell us anything about people who do not seek testing or choose not to test. All states provide HIV counseling and testing services and maintain data to quantify HIV counseling

and testing services delivered in publicly-funded sites and to determine the characteristics of persons receiving those services. These data are used by prevention programs to plan and target services for high-risk individuals. The type of data collected in South Carolina include the counseling and testing site type, number of clients tested and number positive for each risk group, number tested, number positive by type of test site, and number tested and number positive by race/ethnicity gender, and age group. Clients receive confidential counseling and testing in each of the 46 county health department clinics.

Note: in 2001 counseling and testing was also provided by community organizations but data from these sites were not available for this report.

The counseling and testing data system is standardized and has been in place for several years. Data in this Epi-Profile reflect number of individual clients tested during a specific period of time. Persons who received multiple tests during the report period are only counted once. It includes persons tested in family clinics, maternity clinics, TB, STD clinics and persons voluntarily requesting services or referred through partner counseling services. Approximately one third of the total of newly diagnosed and reported persons with HIV infection each year are from SC-DHEC counseling and testing sites. Persons tested in other settings, such as physician offices, hospitals, state facilities, etc. are not included in the DHEC counseling and testing database.

To determine a client's level of risk, each person is assigned a risk status (e.g. injecting drug use, male to male sex, heterosexual with known risk). Since most clients acknowledge multiple risks, risk status is determined by using the CDC's hierarchy of risk. This process assigns the client's "highest" risk. The highest possible risk in the hierarchy is sex with a person with HIV/AIDS, while the least significant risk is "no acknowledged risk". A person is only represented in their highest risk category regardless of how many risks the client acknowledges. This CDC risk hierarchy can limit interpretability of data; it also does not reflect associated risks such as other non-injecting substance use, i.e. crack-cocaine.

Counseling and testing data in South Carolina and nationally is distinct from blinded, HIV seroprevalence surveys which generate an estimate of HIV seroprevalence that is unbiased by client self-selection. The DHEC counseling and testing system only includes clients who seek out counseling and testing services or agree to be tested after consultation with a counselor at a clinic site. However, for those clinic sites in which clients can obtain services other than counseling and testing for HIV, and in which all or nearly all clients actually receive HIV testing, (for example, maternity and STD clinics), data for those sites approximates the reliability of the blinded surveys. For example, the annual percentage of HIV positive tests is consistently 0.1% in DHEC maternity clinics where an estimated 80-90% of clients receive HIV testing. This rate is very similar to the blinded childbearing women seroprevalence survey rate of 0.19%, which tests a representative sample of all live births in the state.

DHEC HIV/AIDS Reporting Surveillance System (HARSS)

All health care providers, hospitals, and laboratories in South Carolina are required to report persons diagnosed with confirmed HIV infection and/or AIDS. Each year approximately one-third of new cases are reported from county health departments, one-third from hospitals, one-fifth from physicians, and the remainder from state/federal facilities (including prisons) and laboratories. HARS monitors the incidence and demographic profile of HIV/AIDS; describes

the modes of HIV transmission among persons with HIV/AIDS; guides the development and implementation of public health intervention and prevention programs; and assists in evaluating the efficacy of public health interventions. It is the principal source of knowledge regarding trends in the number and characteristics of HIV-infected persons. It includes persons in all age, gender, race/ethnic, and mode-of-HIV-exposure groups; and it provides a historical perspective in trends dating to the earliest recognition of the AIDS epidemic.

This profile primarily presents data on the total infection/disease spectrum: HIV infection including AIDS (not AIDS alone). Because of the long and variable period from HIV infection to the development of AIDS, trends in AIDS cases data do not represent recent HIV infections or all HIV-infected persons. AIDS surveillance data do not represent persons whose HIV infection is not recognized or diagnosed. AIDS cases have declined nationwide; however, because AIDS surveillance trends are affected by the incidence of HIV infection, as well as the effect of treatment on the progression of HIV disease, future AIDS trends cannot be predicted.

Because trends in new diagnoses of HIV infection are affected when in the course of disease a person seeks or is offered HIV testing, such trends do not reflect the total incidence of HIV infection in the population. In addition, because all HIV-infected persons in the population might not have had the infection diagnosed, these data do not represent total HIV prevalence in the population. Interpretation of these data is complicated by several factors, ranging from a person having both HIV then AIDS diagnoses in the same year, varying time between reporting HIV and AIDS cases, and numerous reasons why the number of new HIV diagnoses changed (increased, decreased, or stable).

Some data is provided on HIV infection-only (persons reported with HIV infection who do not have an AIDS diagnosis within 365 days of being diagnosed with HIV). This data, while highly dependent on persons seeking or receiving HIV testing early in their infection stages, provide an opportunity to compare persons presumably infected more recently with those infected as long as ten or so years ago (AIDS diagnosis).

Risk categories are assigned similar to the methods described above in HIV Counseling and Testing. There are some slight differences in the type of categories between HIV/AIDS surveillance reports and HIV Counseling and Testing reports. In South Carolina, about 33% of adult/adolescent HIV infection/AIDS cases reported in 1998 did not have risk categories reported. These cases are defined as “No Identified Risk”- NIR). The proportion of NIR cases has been increasing nationally as well. The primary reason for incomplete risk information (NIRs) is that reports from laboratories do not include risk, and an increasing proportion of cases result from heterosexual transmission but are not able to be defined in CDC’s definition of heterosexual transmission. For example, persons who report having multiple heterosexual partners or who have sex for money/drugs but the status of their partners is not known, are not classified as “heterosexual”, they are “No Identified Risk”. South Carolina has received funding from CDC to conduct a special project to collect and define indicators of behavioral risk, particularly to define high risk heterosexual behaviors. Indicators include multiple heterosexual and same sex partners, drug use, evidence of blood transfusion or hepatitis, history of sexually transmitted disease, or exchange of money or drugs for sex. This project will provide more useful risk information for prevention planning in the future.

DHEC Sexually Transmitted Diseases Management Information System (STD*MIS)

Health care providers and laboratories are required by law to report certain sexually transmitted diseases (including syphilis, chlamydia, gonorrhea, chancroid, hepatitis) to SC-DHEC. A sexually transmitted disease, other than HIV infection, represents a visible and immediate health problem that stems from unprotected intercourse with an infected partner. Research from several studies strongly indicates that STDs increase the possibility of acquiring and transmitting HIV infection. The emerging problem of heterosexual HIV transmission in the South closely parallels that of syphilis and gonorrhea. Gonorrhea, syphilis, and chlamydia incidence and prevalence data are used by programs to: 1) monitor local, and state trends; 2) identify high-risk groups and geographic areas in which unsafe sexual behaviors occur, 3) guide the development and implementation of public health intervention and prevention programs; and 4) assist in evaluating the efficacy of public health interventions.

Considering the short incubation periods for these infections, gonorrhea, syphilis, and chlamydia incidence represent recent consequences of unsafe sexual behavior and point to populations who are potentially at very high risk for acquiring and transmitting HIV infection. Unfortunately, an often unrecognized aspect of STDs, including bacterial STDs, is how frequently persons with these infections have no symptoms or do not recognize symptoms. Most studies of STDs are conducted in health-care settings specifically for persons who do recognize symptoms; therefore, these studies usually overestimate the proportion of infected persons who are symptomatic. Studies of STD screening in nonhealth-care settings (e.g., jails, workplaces, and communities) or health-care settings where STD treatment is not the primary function (e.g., family-planning clinics) suggest that most persons with gonorrhea or chlamydia are asymptomatic.

Limitations: STD data lack much information that would help to better understand HIV risk, such as mode of transmission. Also, bias is introduced for some diseases, such as chlamydia, where screening of asymptomatic persons is done much more frequently in women than in men. For example, all women <25 years attending family planning and STD clinics in county health departments are routinely screened for chlamydia and gonorrhea. Also, there may be bias in that the majority of reports are from public clinics; the personal nature of STD's may affect providers' willingness to report. This may account, in part, for the disparity of some STDs to occur at much higher rates among African Americans who are more likely to seek care in public clinics, where there is more complete reporting.

South Carolina Statistical Abstract, 1998 and 2000

An annual publication of the South Carolina State Budget and Control Board, Office of Research and Statistics, this document provides a comprehensive, single-source reference of demographic and economical data pertinent to South Carolina. Statistics providing information on factors impacting the state's social and economical development are compiled from in-house data bases as well as a variety of federal, state, local, and private sources. In order to complete the epidemiologic profile, sociodemographic data from sections State and County Rankings, Education, Employment, Housing, Income, and Population were used. The abstract depends heavily on the US Bureau of the Census data from 2000. As a result of this, data may not represent the current situation in South Carolina.

South Carolina Vital and Morbidity Statistics, 2002

Its purpose is to provide basic reference data for a variety of users. The primary uses of the report were to enumerate and characterize mortality attributed to HIV infection. The data were also used to compare trends in HIV infection mortality with other leading causes of death and to characterize the impact of HIV infection on mortality. Data on causes of death are based on information recorded by hospitals, physicians, coroners, midwives and funeral directors. Recorded information may be inaccurate or incomplete due to underreporting of certain causes of deaths, the number of HIV-related deaths and the conditions may be underestimated. Vital statistics data are not as timely as AIDS case reports due in part to processing time.

Youth Risk Behavior Surveillance System (YRBSS)

The Youth Risk Behavior Survey (YRBS) was developed cooperatively by the Centers for Disease Control and Prevention (CDC), several federal agencies and state departments of education to measure the extent to which adolescents engage in health risk and health enhancing behaviors. The survey is a 99-item questionnaire administered to 9th-12th graders in the public school system. Samples are randomly selected based on school size (small, medium and large). Of the 99 items, 11 are on tobacco use, 5 on alcohol use, 4 on marijuana use, 9 on cocaine use, 8 on sexual behaviors for pregnancy, HIV/AIDS and other STD risk, 2 on HIV/AIDS Education, 1 on HIV/AIDS testing and 2 on HIV/AIDS risk perceptions. There are 380 private K-12 schools in South Carolina (SC Statistical Abstract, 1998). However, none of them are included in the survey. Youth who are in middle school are not included as well. Also, while schools are randomly selected for participation some may choose not to participate.

This survey relies heavily on surveillance methods and self-reports; so it really depends on how well respondents understand the question and how well they can accurately and honestly answer the question. However, the data are edited, checked and weighted. These data are representative of only public high school students in grades 9-12 in South Carolina.

Supplement to HIV/AIDS Surveillance (SHAS) Project

A population-based study developed by the Centers for Disease Control whose main focus is to obtain additional descriptive information on persons newly reported with HIV or AIDS. The questionnaire contains 118+-questions divided into five modules that investigates sexual and drug use behaviors, reproductive and child health, medical compliance, HIV testing and health and social services. It is administered by trained interviewers to HIV infected persons who are at least 18 years of age and live in the five counties of the state that are participating in the study—Charleston, Orangeburg, Bamberg, Calhoun, and Richland Counties. Prisoners are excluded.

SHAS data provide a picture of the epidemic by identifying recently practiced behaviors that may have led to infection, demonstrating current needs of HIV infected persons, and investigating minority health issues and reasons for noncompliance of antiretroviral therapy, information that is increasingly needed by health agencies. The SHAS survey includes six sections:

- 1) demographic/socioeconomic,
- 2) drug use,
- 3) sexual behavior/STD history,
- 4) reproductive history,

- 5) HIV testing and medical therapy, and
- 6) health and social services.

Limitations: This survey relies heavily on surveillance methods and self-reports; so it really depends on how well respondents understand the question and how well they can accurately and honestly answer the question. Although cumulative SHAS data closely reflects the HIV/AIDS epidemic with regard to race and sex, caution should be used in the interpretation and generalization of the data to the entire state. Due to the nature of the project, SHAS should not be used to track trends across time (project areas starting at different times and staffing turnover). Trends such as increased/decreased crack use in HIV infected patients from Charleston and none in Richland could be false if in fact no interviews were taken during that period in that particular area.